

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference UP0107	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/DE2004/000546	International filing date (day/month/year) 17.03.2004	Priority date (day/month/year) 17.03.2003
International Patent Classification (IPC) or national classification and IPC		
Applicant ISKA GMBH		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.	
2.	This REPORT consists of a total of <u>10</u> sheets, including this cover sheet.	
3.	This report is also accompanied by ANNEXES, comprising:	
a.	<input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>5</u> sheets, as follows:	
	<input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).	
	<input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.	
b.	<input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s))	
	_____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).	
4.	This report contains indications relating to the following items:	
	<input checked="" type="checkbox"/> Box No. I	Basis of the report
	<input type="checkbox"/> Box No. II	Priority
	<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
	<input checked="" type="checkbox"/> Box No. IV	Lack of unity of invention
	<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<input type="checkbox"/> Box No. VI	Certain documents cited
	<input checked="" type="checkbox"/> Box No. VII	Certain defects in the international application
	<input type="checkbox"/> Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. I

Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-32 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 2-21 received by this Authority on 17.01.2005 with the letter of 13.01.2005
- nos.* 1 received by this Authority on 24.05.2005 with the letter of 18.05.2005
- ☒ the drawings:
- sheets 1/10-10/10 as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-21	YES
	Claims		NO
Inventive step (IS)	Claims	20-21	YES
	Claims	1-19	NO
Industrial applicability (IA)	Claims	1-21	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

1. This report makes reference to the following documents:

D1: US-B-6 168 6421 (VLYSSIDES APOSTOLOS G ET AL)

2 January 2001

D3: DE 100 05 149 A (FRIEDLI DANIEL)

23 August 2001 (2001-08-23)

D10: DE10063888 A1 (FARMATIC BIOTECH) 11.07.2002

2. INDEPENDENT CLAIM 1

- 2.1 D1 [US-B-6168642] describes a process for treating waste in which refuse is subjected to mechanical and biological treatment (pulping), organic constituents in process water are fermented and process water is stripped of dissolved ammonia gas (PCA method) (cf. the references in the international search report).

D3 [DE 100 05 149] also describes a process as per the preamble of the present claim 1.

D10 describes a process for the treatment of waste

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>in which the waste is treated mechanically (mixing) and biologically (fermentation in a biogas plant) and process water from which organic matter has been removed obtained by anaerobic fermentation is stripped (PCA method) of dissolved ammonia gas, wherein solid-liquid separation and reverse osmosis are conducted upstream of the stripping process (cf. D10, figure 1, paragraph [003] and claim 1).</p> <p>2.3 D10 does not (explicitly) disclose the separation method used before reverse osmosis and therefore neither ultrafiltration nor mechanical fine screening is explicitly mentioned in this connection. Therefore, the subject matter of the present independent claim 1 is novel (PCT Article 33(2)).</p> <p>2.4 In light of the teaching of D10, the problem addressed by the present invention may therefore be considered that of selecting as a preliminary separation technique a screening process suitable for improving the process or protecting downstream reverse osmosis. The solution proposed in claim 1 of the present application (ultrafiltration and/or mechanical fine screening before reverse osmosis) cannot be considered to involve an inventive step (PCT Article 33(3)), since a person skilled in the art would select a suitable screening process for the preliminary separation stage according to the circumstances without thereby being inventive.</p>

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
2.5	<p>Further, the subject matter of the present independent claim 1 differs from D1 and D3 in that the PCA method comprises mechanical fine filtration and reverse osmosis to separate substances. In light of the teaching of D1 or D3, the problem addressed by the present invention may therefore be considered that of designing the PCA method such that (process) water is liberated from contaminants.</p> <p>The solution proposed in claim 1 of the present application (PCA method involving upstream mechanical fine filtration and reverse osmosis) cannot be considered to involve an inventive step (PCT Article 33(2) Article 33(3)). The reasons are: the process of treating wastewater obtained by anaerobic fermentation by means of upstream filtration and reverse osmosis before ammonia stripping is known (cf. D10, figure 1).</p> <p>3. DEPENDENT CLAIMS 2-19</p> <p>Dependent claims 2-19 do not appear to contain any features which, in combination with the features of any claim to which they refer back, meet the PCT requirements for novelty and inventive step.</p>

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Box No. VII **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

Although the applicant has petitioned for claim 10 to be deleted, a correspondingly renumbered application has not been filed.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: IV

The International Searching Authority has determined that this international application contains multiple (groups of) inventions which are not linked by a single general inventive concept (PCT Rule 13.1), as follows:

Invention I: main claim 1

In the most general embodiment of claim 1, the invention pertains to a process for mechanical-biological waste treatment. The organic matter-contaminated percolate water obtained by percolation is treated by separating off organic constituents.

Invention II: main claim 20

The invention described in claim 20 pertains to a reactor with a fixed bed in which organic matter-contaminated process water is treated biologically.

The search yielded the following prior art relevant to assessing unity of invention:

D1: US-B1-6 168 642

D1 discloses a process for treating waste in which refuse is subjected to mechanical and biological treatment (pulping), organic constituents in process water are fermented and process water is stripped of dissolved ammonia gas.

D3: DE 100 05 149 A

D3 discloses a process for mechanical-biological

Supplemental Box

waste treatment. The organic matter-contaminated percolate water obtained by percolation is treated in a hybrid reactor.

Comparison of the present groups of claims with the indicated documents reveals that the following features define a contribution over the prior art and can therefore be considered special technical features according to PCT Rule 13.2.

Group I: Reverse osmosis in the PCA stage to precipitate salts

Group II: A gas-injecting device according to the present claim 20

The following can be considered the problems solved by the special technical features:

Group I: Deionization of condensate water and water from the stripping column

Group II: Prevention of channelling in column packings and extraction therefrom of spent bacterial sludge.

These problems differ from each other or are known in the prior art (see above).

Moreover, the description shows that the separation of organic constituents claimed in claim 1 (cf. page 22, lines 9-14) represents no more than an alternative biological treatment to the process implemented using a hybrid reactor.

Supplemental Box

Consequently, a technical relationship among the inventions such as to form a single general inventive concept cannot be established on the basis of either the problem addressed by each invention or the solutions thereto defined by the special technical features of each invention.

Therefore, the indicated groups of inventions lack unity of invention according to PCT Rules 13.1 and 13.2 in regard to both their special technical features and the problems solved.